Chapter 12
Electrical

Section 1200.0 Scope

Sec. 1200.1 General: Where buildings or parts of buildings and structures extend below the RFD, the electrical materials, equipment, and installation shall conform to the requirements of this section of the Regulations.

Section 1201.0 Requirements at Locations Above and Below the RFD

Sec. 1201.1 Main Power Service: The incoming main commercial power service equipment, including all metering equipment, shall be located above the RFD. Whenever a building or structure is not accessible by a bridge, walkway, or other connecting means except by boat during periods of flooding to the RFD, a means for disconnecting the incoming main commercial power service shall be provided at an accessible remote location above the RFD.

Sec. 1201.2 Stationary and Portable Equipment: Switchgear, control centers, transformers, distribution, and main lighting panels in addition to all other stationary equipment shall be located above the RFD. Portable or movable electrical equipment may be located in any space below the RFD provided that the equipment can be disconnected by a single plug and socket assembly of the submersible type and rated by the manufacturer as submersible for not less than 72 hours for the head of water above the assembly to the RFD. All disconnect assemblies shall be provided with submersible seals attached to the disconnect assembly by means of a corrosion resistant metal chain for immediate use when needed to ensure safety to all personnel during a flood. All portable or movable equipment should be de-energized and/or moved out of potentially flooded spaces upon receipt of a flood warning and prior to floodwaters reaching floor levels where such equipment is located.

Sec. 1201.3 Normal and Emergency Lighting Circuits: All circuits except emergency lighting circuits, extending into areas below the RFD shall be energized from a common distribution panel located above the RFD. All emergency lighting circuits into areas below the RFD shall be energized from an independent distribution panel also located above the RFD. Each distribution panel shall have the capability of being de-energized by a separate single disconnecting device.

Sec. 1201.4 Emergency Lighting Requirements: All areas of the building or structure that are below the RFD, where personnel may be required to conduct emergency operations or work with water present on the floor of the area during a flood, shall be provided with automatically operated emergency lighting facilities and automatically operated electrical disconnect equipment to ensure that all electrical circuits into these areas, except emergency lighting circuits, are de-energized prior to personnel working in water. The electrical circuits shall be de-energized prior to the presence of any water on the floor of the affected area. All components of emergency lighting systems installed below the RFD shall be so located that no component of the emergency lighting system is within reach of personnel working at floor level in the areas where emergency lighting systems are utilized unless the emergency lighting circuits are provided with ground-fault circuit interrupters having a maximum leakage current to ground sensitivity of five milliamperes. The energy for emergency lighting may be furnished by a storage battery(s), prime mover-generator system, a separate commercial power supply system, the same commercial power system, or a combination thereof, subject to the following provisions of this section.

> **Sec. 1201.4.1 Storage Battery (including battery operated lighting units):** Battery operated lighting units shall be completely self-contained and shall indicate the state of charge of the battery at all times. Lighting units shall automatically provide light when the normal source of lighting is de-energized. Sufficient number of emergency lighting units shall be provided to enable personnel to perform their assigned emergency tasks and to permit a safe exit to areas above the RFD.
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> **Sec. 1201.4.2 Separate Commercial Power Supply System:** This source of energy shall have a degree of reliability satisfactory to the Building Official. A system fed from a substation other than that used for the regular supply and not on the same poles (except service pole) as the regular supply is deemed to have the required degree of reliability. A

secondary circuit fed from the same primary network circuit as the regular supply shall be regarded as a separate system.

Sec. 1201.4.3 Same Commercial Power Supply System: The system shall be an underground secondary network system and a separate service shall be connected on the line side of the service switch or breaker of the regular service.

Sec. 1201.5 Lighting Circuits Below Regulatory Flood Datum: Lighting circuit switches, receptacles, and lighting fixtures operating at a maximum voltage of 120 volts to ground may be installed below the RFD, provided that these circuits shall be de-energized as noted in 1201.4. Should any switch, receptacle, or lighting fixture be flooded, its particular circuit shall not be re-energized until such circuits and devices, and/or any part thereof, have been disassembled and thoroughly checked, cleaned, or replaced, and approved for use by qualified personnel.

Sec. 1201.6 Submersible Equipment: Except for the switches, receptacles, and lighting fixtures noted herein, all other electrical equipment permanently installed below the RFD shall be of the submersible type rated by the manufacturer for submergence for not less than 72 hours for a head of water above the equipment to the RFD.

Sec. 1201.7 Submersible Wiring Requirements: All electrical wiring systems installed below the RFD shall be suitable for continuous submergence in water and shall contain no fibrous components. Only submersible type splices will be permitted in areas below the RFD. All conduits located below the RFD shall be so installed that they will be self-draining if subject to flooding conditions.

Sec. 1201.8 Elevators: All electric power equipment and components of elevator systems shall be located above the RFD. Automatic type elevators shall be provided with a home station to which the elevator will automatically return after use, with home station located above the RFD.

Sec. 1201.9 Electric Heating Equipment: Electric unit heaters installed below the RFD shall be capable of disconnection and removal in the manner described for portable electrical equipment in 1201.2. Electric controls on gas and oil furnaces located below the RFD shall not exceed 120 volts to ground and the control circuits shall be automatically de-energized prior to the presence of any water on the floor of the affected area in accordance with 1201.4.

Sec. 1201.10 Sump Pump Installation: Buildings and structures utilizing sump pumping equipment of any type to keep areas within the structure free of water shall be provided with float operated warning alarms that shall act independently of any other float actuating devices used to start and stop pumping equipment. All buildings or structures utilizing sump pumping equipment shall be provided with automatic starting standby electrical generating equipment located above the RFD. The standby generating equipment shall be capable of remaining in continuous operation for a period of 125 percent of the anticipated duration of the design flood.